Citizen ID

In Thailand, Citizen ID Card ID Numbers have 13 digits. Given n_0 as the leftmost digit, and n_{12} as the rightmost digit, the rightmost digit can be calculated by using the 12 digits to its left to check if the ID Number has been inputted incorrectly or not (to a level). This is called a check digit. To calculate the check digit, the following formula is used:

$$n_{12} = (11 - (13n_0 + 12n_1 + 11n_2 + 10n_3 + 9n_4 + 8n_5 + 7n_6 + 6n_7 + 5n_8 + 4n_9 + 3n_{10} + 2n_{11}) \; mod \; 11) \; mod \; 10$$

Please write a program to calculate the check digit from the first 12 digits of an ID Number, and display the ID Numbers in the standardized format.

Input

The first 12 digits of an ID Number (from the left).

Output

The first 12 digits inputted, plus the check digit, in the standardized format. (See example output.)

Example

Input (from keyboard)	Output (on screen)
123456789012	1 2345 67890 12 1
310030011214	3 1003 00112 14 2
110070234512	1 1007 02345 12 9